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NORTHWEST CONFERENCE ON TELEVISION IN EDUCATION, APRIL 23-24, 1962.

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WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

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A CONFERENCE WAS HELD (1) TO ENCOURAGE COOPERATIVE PLANNING BY KEY REPRESENTATIVES OF EDUCATION AND STATE GOVERNMENTS FOR THE BEST USE OF EDUCATIONAL TELEVISION IN THE FOUR NORTHWEST STATES OF IDAHO, MONTANA, OREGON, AND WASHINGTON, AND (2) TO HELP MAKE POSSIBLE THE INFORMED USE OF FEDERAL MATCHING GRANTS FOR CONSTRUCTION OF EDUCATION TELEVISION FACILITIES. PAPERS WERE PRESENTED ON (1) THE ROLE OF TELEVISION IN EDUCATION, (2) THE DEVELOPMENT OF EDUCATIONAL TELEVISION IN THE U.S., (3) FEDERAL ASSISTANCE TO EDUCATIONAL TELEVISION, (4) ETV IN THE NORTHWEST, AND (5) REPORTS OF STATE DISCUSSION GROUPS. (HB)

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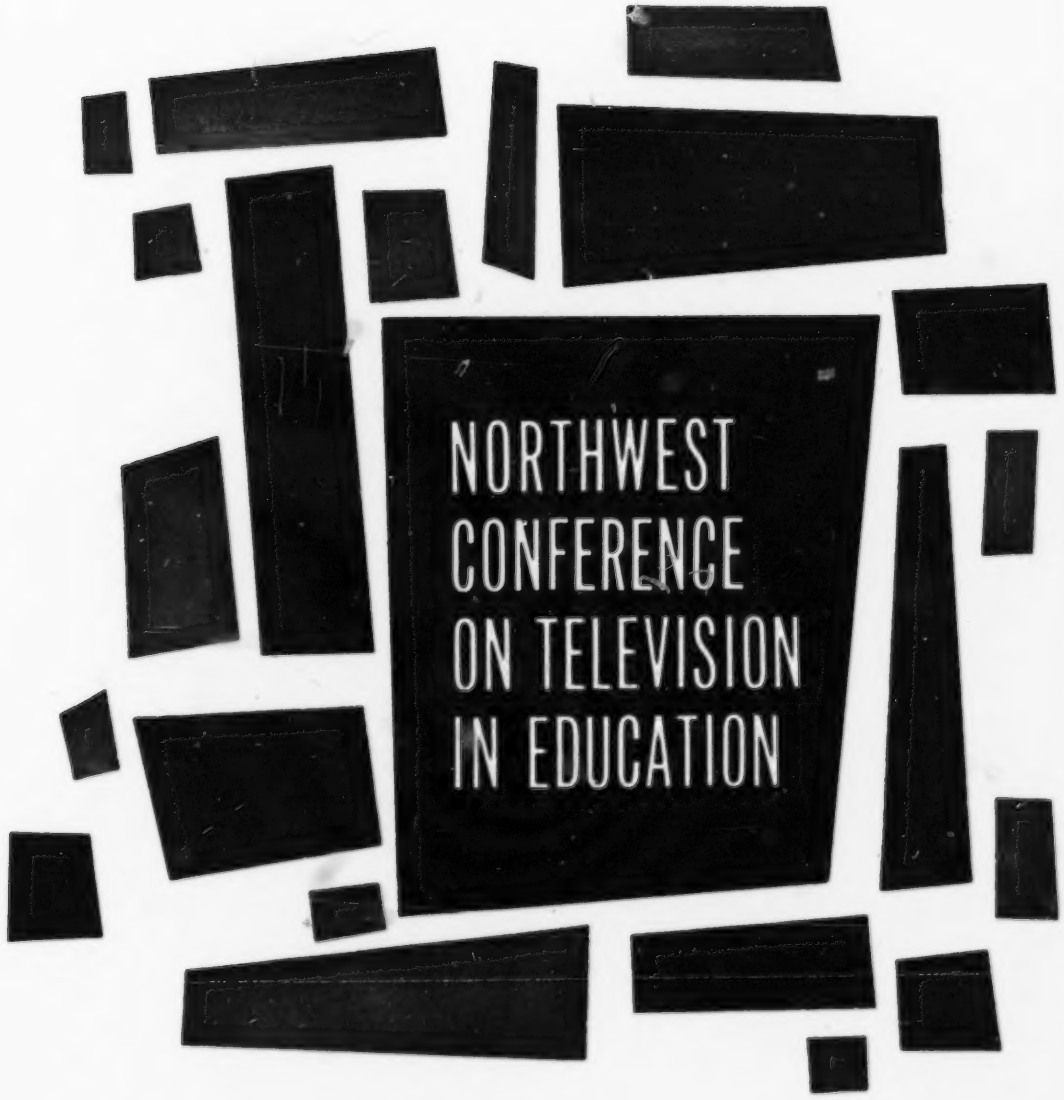

SPONSORED BY THE WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION

UNIVERSITY OF WASHINGTON, SEATTLE, APRIL 23 - 24, 1962

NORTHWEST CONFERENCE ON TELEVISION IN EDUCATION

University of Washington, Seattle
April 23-24, 1962

Report of the Conference
Edited by
Terry F. Lunsford

Sponsored by the

Western Interstate Commission for Higher Education
Fleming Law Building, Boulder, Colorado

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FOREWORD

The Conference reported here was sponsored by the Western Interstate Commission for Higher Education with these aims: 1) to encourage cooperative planning by key representatives of education and state government for the best use of educational television in the four Northwest states of Idaho, Montana, Oregon and Washington; and 2) to help make possible the informed use of Federal matching grants for construction of ETV facilities when they become available under Public Law 87-447.

We are extremely gratified by the interest shown in the Conference and in these goals by educators and state officials in the Northwest. Since the Conference and the enactment of Public Law 87-447, new statewide coordinating committees for ETV have been formed in Idaho, Oregon and Washington. Montana's governor and top educational officials have received reports on the State's ETV study, on this Conference, and on the Federal grant legislation. And in all four Northwest states planning is going forward for the best development of television to serve their citizens' educational needs.

The Conference was made possible by a contract with the United States Office of Education, and by funds from WICHE's Ford Foundation grant for the encouragement of interstate and inter-institutional cooperation in the use of ETV. The Commission's thanks go to these agencies, and to the many conferees who paid from other sources their own expenses to attend the Conference.

We also wish to thank the University of Washington for the donation of valuable staff time and for the use of its excellent ETV studios. A number of the Conference program participants also contributed their time and expert knowledge without compensation. Among these were the members of the Conference planning committee: Loren B. Stone, Manager of Station KCTS-TV at the University of Washington; Ralph Steetle, Associate Dean of the General Extension Division, Oregon State System of Higher Education; and Erling S. Jorgensen, Director of the Montana Educational Television Project. The Conference was directed, and this report was prepared, by Terry F. Lunsford, WICHE's Director of Special Regional Programs.

We hope that this Conference report will contribute further to the understanding and effective use of educational television in the West.

Robert H. Kroepsch
Director

THE ROLE OF TELEVISION IN EDUCATION

by Reuben G. Gustavson
Professor of Chemistry
University of Arizona

(Dr. Gustavson's career in higher education and research spans more than a quarter-century. Educated as a chemist at the University of Denver and the University of Chicago, he has taught at a number of institutions. He was Acting President of the University of Colorado from 1943 to 1945, became Vice President and Dean of Faculties at the University of Chicago in 1945, and was appointed Chancellor of the University of Nebraska in 1946. From 1953 to 1958, he was Executive Director of Resources for the Future, Inc., a non-profit organization established by the Ford Foundation for advanced resources planning. He is now Professor of Chemistry at the University of Arizona in Tucson, and a nationally-known consultant to various groups.)

Let me begin by explaining my experience with television and education,

The Ford Foundation gave the University of Arizona, as it did in a lot of other institutions, a sizeable grant for a three-year experimental study of teaching by television. The course that I began teaching on television was a terminal course, for liberal arts students who wanted a year of science, for home economics students not going into research activities, and for a large group of nurses. Many of these were nurses who had been out of school for some time, some of them as practical nurses, and who were returning in order to get their nursing certificates.

Lectures in that course were given three times per week, each lasting for 50 minutes. A three-hour laboratory course, meeting once a week, went along with the lectures, and there was a one-hour quiz section each week. That is the basis on which we worked for two years. Then the University decided to enlarge the work offered on television, so after a meeting with the deans of the various colleges it was decided that I would give the main course in chemistry -- where, as I put it, we play chemistry for keeps. Students in this course are going on to careers in medicine, or as chemists, engineers, research workers and so on. They will make professional use of their knowledge of chemistry. This course has been offered on television since September, 1961. Again, we have three lectures per week, and now these lectures are taped for re-play at another time. We still have a three-hour laboratory period and a one-hour quiz section, and that makes up the general outline of the course.

For viewing on the campus, we use a closed-circuit hook-up, but at the same time the course is broadcast on the University's ETV station, and I believe that

it reaches out to a radius of about sixty miles. Quite a few people apparently listen simply because they are interested; I have been told that we have about two thousand listeners in all. (I think it is 2,000 -- plus or minus 2,000.)

Interestingly enough, the listeners include quite a few mothers whose children are taking chemistry in high school and are having trouble with it; they follow the course so they can help their youngsters. Also, there are two high schools in the area in which selected groups of seniors follow the course as a group under the supervision of their high school chemistry instructors. They view the lectures, do the same laboratory work as we do at the University, and take all the examinations, which I send to them. They then come to the University and take the final examination as well. These are selected students, of course, and they are doing some of the best work in the course. In fact, out of last year's group we had twelve students who went directly into analytical chemistry from this group. These twelve students are all making 1's, which is the highest that you can make. Some have gone on to other universities, and the reports which come back are generally good. Of course, this is largely because they are good students, but I have to brag about them.

In addition, the University of Arizona offers Spanish via television, and this course is very successful with a very large listening audience. We also have a course in art. The professor in charge is not very happy with the course, since he feels that the distortion of line and the absence of color handicap the presentation of this subject. We also have the College of the Air, in which one teacher is giving a course in biology, telecast in color. He is doing a magnificent job.

Now, let us talk about the advantages and disadvantages of doing this job of education by television.

Problems of Teaching by Television

The first handicap that I find in teaching chemistry by TV is the lack of color -- everything is in some shade of gray. Chemistry is a very colorful subject. For example, if you want to present a beginning experiment showing that sulphur dioxide reacts with water to form an acid, you would usually allow this acid to come in contact with blue litmus and let the students see it turning red. But nothing like this would show on the television screen. So you have to supplement this. You can use other chemicals which give very distinct differences in shades of gray -- but still shades, not color. This is a handicap in the teaching of chemistry and also, I am sure, in the teaching of biology. If you could see what our friend is doing on the College of the Air with color television in teaching biology, you would see what a tremendous advance will be possible when color TV becomes generally available.

Another disadvantage which the teacher feels very keenly is the lack of "feedback" from his class. When I started teaching this course on television, I am sure that I gave the students three times as much work as I should have. You see, when you are in the studio by yourself there falls the deadliest silence imaginable when you are not talking. So you go on talking, and you forget that it is not what you say into the microphone that counts but what comes out on the screen that the students can digest. These are two very different things. You have to learn to supply your own feedback, to raise the questions about your demonstrations which you think will puzzle the students. This is sometimes hard to do.

This problem can be overcome to some extent in the weekly quiz sections which we hold, but it is still a disadvantage. A youngster who listens to you discuss the laws of equilibrium, for example, may have a question now, but the quiz section is next Friday. By that time, he has forgotten about it and you lose the advantage of this feedback.

Of course, one of the advantages is that when your demonstration experiment fails -- and some of them always do -- at least you can't hear the students laughing at you.

How should we react to these sorts of problems? Well, I know some people who are trying to teach by television who feel that they should teach over television in exactly the same way they teach in the classroom. Then they keep good records and try to see whether it comes out as well or better or worse. This is like getting into an airplane and trying to drive it exactly the way you drive an automobile -- and seeing whether it comes out the same or worse or better. In television we have a completely new technique to deal with. We must learn how to use this technique, how to compromise with it, and how to use the many advantages which it makes available to the teacher.

Teaching Advantages of Television

What are some of these advantages?

In the first place, everyone can hear. No one is sitting back in the forty-second row trying to see what is going on; everyone has a front seat. This is especially interesting in the teaching of chemistry, because in most chemistry courses teachers have stopped doing "lecture table" experiments. Because today's classes are so large, the number who can see what the teacher is doing is so limited that he may as well forget the demonstration altogether. I have 826 students registered in my chemistry course for credit -- the people who are "playing chemistry for keeps." Each of them has a front seat, so consequently we do a lot of lecture table experiments. And what you can do with them is very exciting. If I put a thermometer in a beaker or test tube where a reaction is going to take place, such as the liberation or absorption of heat, they can read the thermometer! It is just a question of how close you bring the camera. This is a tremendous advantage.

Here we reach another of the advantages of teaching by TV. The teacher finds himself trying to rig up all kinds of new experiments, and this makes the job very interesting. We are trying to use the television mechanism for all it is worth.

Also, we are beginning to get a sort of a fraternity started, of persons who are teaching on television. Up here at Oregon State University, I happen to know that Dr. Clem Slabaugh is doing a wonderful job of teaching chemistry on television. When he works out a particularly good experiment, he lets me see it and I take advantage of it; when I work out a good one I let him see it in turn. This is wonderfully helpful to a teacher, because usually you hear about great teachers but you would have to travel many, many miles to listen to them. It is not necessary to do this any more; you can simply get the video tape of an experiment, sit down at your leisure, and see in detail how he does it.

This offers tremendous possibilities for the teacher, I think. We should be able gradually to work up courses that are better than anything we are doing now, because we take the best of everybody's work.

Another factor that is connected here, of course, is that students have to learn to study with the aid of television. But they have had a lot of experience with television at home, and I do not believe that the medium itself offers a hazard. Someone at our university noticed that, in the listening rooms on the campus, several students were asleep. I don't doubt it. I have been teaching since 1917, and I know that sleeping in class is nothing new! Perhaps we might think of using a few commercials in educational television as a scheme for waking the class up periodically if it becomes necessary.

Comparison with Conventional Teaching

Many people are interested, of course, in comparing teaching by television with teaching in the regular classroom. After I had taught my first television class for one semester, I wondered just how these youngsters would do if we had a "person-to-person" course. So I violated our contract with the Ford Foundation and taught a new group the same material on a "person-to-person" basis. I could not see that there was any particular difference in the results.

Then, since I have taught general chemistry for a long time, I was very much interested in how it would affect these youngsters' performance to have the lecture available at 7:40 and again at 10:40. So I have always plotted the success of my students against the battery of examinations which we give freshmen at the beginning of the year in science, mathematics, and so on. And it is interesting to note that now we cannot spot the failures as we used to be able to do. In the past, if a student did very poorly in mathematics, such as simple math and algebra, we could pretty well predict that he was not going to do very well in chemistry. But this does not hold up as well as it did, and many students began beating the predictions that I would have made previously. So I called in some of these students and told them that I was glad they were doing so well in chemistry, but that it was surprising to me because they didn't pass their examinations very well when they came in the fall. These kids had been listening twice! They listened at 7:40 and then they came back at 10:40 and took notes. Some not only did that, but brought a recording apparatus with them.

One youngster said to me, one day, "When you were talking about fermentation you mentioned something about 'fuel oil'; I think you meant 'fusel oil'." I said, "Oh, no, I said fusel oil." He said, "Do you want to hear it?" And I said, "No, thanks. I'll take your word."

Another thing that we must realize about televised teaching: it takes quite a group to do it. Before teaching this chemistry course on television, we had three lecturers; now we have just one. But, of course, we must have the same number of quiz sections whether we teach by television or face to face. And the group of people handling these have to work together with the lecturer.

When I had been teaching on television for a short time, I visited some of the quiz sections in order to test the reactions of the students. I found that some of the quiz session leaders were nowhere near the place in the course material that I was in the televised lecture. I suggested to some of them that this was

bad, because I was talking about very elementary matters and some of them were talking about advanced topics which depended on the elementary understanding. One fellow replied that he never listened to the lectures. That lasted for the rest of that semester, but it has been changed. Now we have a group of about 23 people who are helping in the laboratories or the quiz sections, and we meet every week to talk about how the course is going. We have all learned a great deal in this way.

One of the things which television teaching makes you learn if you have not learned it already is that thinking is an organization of experience and that the television screen is only a partial experience. I wonder just how a man from Mars would feel if he sat down in front of the screen and watched a cowboy movie with all the shooting going on? In our chemistry course, for example, I had demonstrated the titrating of acids with bases, and I demonstrated for the class on a lecture table the determination of the percentage of acetic acid in vinegar. When we met in our quiz sessions, the most common question was "What were those long tubes that he was fiddling with?" The apparatus was completely outside their experience. So you have to bear in mind that it is very easy to introduce an electronic gadget or a photo-electric cell which is fun to play with -- but unless it is within the experience of a student he doesn't get anything out of the demonstration.

In trying to get around this particular problem, we now have a wagon on which we put our experimental apparatus after every single demonstration, and this wagon is taken around to all of the laboratory sections so the students can examine it just as we used it in the television lecture.

Another thing that you have to learn is that you must put in a lot of time to get your demonstration experiments ready and to prepare your lectures ahead of time -- far more than you ever had to do in a regular classroom. But this all pays off, and many times the material which you present on television as a result is far superior to what goes on in the regular classroom.

My own opinion, as I look at the different kinds of teaching, is that the number of youngsters that we are going to have to teach is going to be so large, and the number of teachers so limited, that we haven't much choice but to use instruction by television. If I am asked whether I would rather teach a small group of 25, or even perhaps 100, students face-to-face or teach them via television, I would much rather face the students. But this is not my choice. The choice is teaching 1,500 students in a large lecture hall -- where experiments can't be seen, so they aren't done -- or teaching this group by TV. And my answer in that case is "I would rather do it by television, obviously."

President Hovde of Purdue University asked me if I would come down and talk in that same way to their people; he says that he expects to have about 4,000 students in general chemistry next fall. We have about 1,500 at Arizona, so I know he must have that many.

In other words, the question is not whether we want to use television for teaching, but whether we are going to work hard and rapidly to learn how to use this new technique effectively. The real need is to find out what compromises we have to make and how to make them in the best way.

At the end of the first year of teaching this course by television we gave a little questionnaire to the class. We asked whether, if they had to do it over again, they would rather take the course by television or face-to-face. Some said they would rather take it in a regular classroom; a larger number said they would rather take it via television. A great many asked "Who is going to teach it?" To my mind, that is the basic question.

THE DEVELOPMENT OF EDUCATION TELEVISION IN THE UNITED STATES

by Richard B. Hull
Director of the Telecommunications Center
The Ohio State University

(Mr. Hull was Director of Broadcasting at the Iowa State College (now Iowa State University) when the pioneer educational TV station, WOI-TV, went on the air in 1950. He was the first Director of the Joint Council on Educational Television. He presently is Director of the Ohio State University Telecommunications Center, and is active in many national activities involving education and broadcasting.)

The Early Years

The story of educational television's development goes back at least as far as 1932. If you want to include people in science who thought of what it might do before the technology was available, you can go back to the 1870's. But, in any event, in 1932 and 1933 a small cluster of people on the State University of Iowa campus produced what were probably the first educational television programs produced anywhere -- that is, formal programs produced for instructional purposes. They appeared on Station W9XK, an experimental station developed by the State University of Iowa's Electrical Engineering Laboratory. Between 1932 and 1939 that station transmitted more than 400 programs including courses in art, shorthand, engineering and botany as well as drama and some cultural entertainment.

In 1946 this country counted only six regular, authorized, non-experimental television stations and about 6,500 receivers. By 1948 there were 40 commercial stations and 600,000 receivers. The Federal Communications Commission predicted 400 stations by 1950 and a coast-to-coast television network by 1952. But even then, in spite of technical imperfections and the high cost of receivers, television had captured the public's imagination in a way no previous medium of communication had done. Even in 1946 there was little doubt in the minds of radio manufacturers, broadcasters and advertisers that television was destined to become the dominant communications medium of the future.

The educational establishment, however, did not share this vision. Educators generally had not seen the potential implicit in the Iowa experiments of 1933, and had ignored the whole question of whether television had any role in education -- to say nothing of the nature of that role. By 1948 there were only five educational institutions in the United States seriously involved in television and television planning. The State University of Iowa had applied to the Federal Communications Commission for permission to construct a station. Its sister institution, Iowa State University, had received a construction permit. Kansas State College was operating an experimental station on the now defunct Channel 1. The University of Michigan and American University in Washington, D.C., had built

television studios and were producing programs for broadcast over commercial stations. Other developments were underway. In 1950 the station at Iowa State began regular operation as the 100th television station in the country. Syracuse University was offering regular lessons from its television studios and not only was producing an array of programs for release but had initiated the first formal graduate program for professional training of television students. Michigan State University had begun conducting systematic experimentation in closed-circuit television instruction, and had plans to build its own station.

In 1951 the Federal Communications Commission allocation hearings -- which were later to result in the nationwide reservation of television channels for education and work a revolution in American educational methods -- were about to begin. In April, 1952, as a result of those hearings, the Federal Communications Commission established a new kind of broadcast entity, the non-commercial educational television station, and reserved 242 channels in the broadcast band -- there are more now -- for exclusive use by the educational establishment. Kansas State that July applied for permission to construct one of these new stations, but because of financial problems it could not proceed. So Station KUHT, licensed to the University of Houston and the Houston Public Schools, became the pioneer educational, non-commercial station when it began broadcasting on May 12, 1953.

Present Status

Today there are 70 educationally owned television stations on the air in this country; 65 of them hold non-commercial licenses. Forty or more stations are under construction or are in the advanced stages of planning, and at least 100 more can be expected in the future. David Stewart of the National Educational Television and Radio Center would probably correct those figures upward. A "fourth network," the NET, exists in the service of the National Educational Television and Radio Center which has been developed to meet the needs of this new dimension in education. Sixty-two stations are affiliates of NET, which claims 10,000,000 regular viewers and a potential national audience in excess of 26,000,000 people. Alabama, Florida, Oklahoma, are operating statewide television networks. You have some of the detail in your conference materials. And I believe that as of last week Mr. Stewart had identified either a commission or a committee in most of the 50 states and Puerto Rico which was set up to do something about networking or station construction in light of the new Federal legislation to aid educational television.

Station WGBH in Boston is the key outlet in a projected regional network which will link East Coast cities from Philadelphia to Montreal. Educational station KTCA in Minneapolis has completed similar plans for six-state network in the central Middle West. Kansas, Nebraska, Maine and Ohio already have engineered statewide network plans. And the Southern Regional Education Board in Atlanta has proposed a microwave system which would link all of the educational stations and all of the four-year colleges in its 16-state area.

This growth of educational television and of broadcast networks is matched by an even more rapid but less costly development in closed-circuit television installations. The statistics on this are vague because the increase is so rapid, but they possibly total more than 500. And there are some complex receptor systems set up in the six-state area in which the Midwest Program on Airborne

Television Instruction serves; many school buildings -- or blocks of school buildings -- are wired throughout for reception. If those systems are considered closed-circuit installations, the total in that six-state area is more than 1,000. Cable and microwave systems are being widely employed in closed-circuit installations, for special laboratory applications, for observation of university lectures and demonstrations (notably in medical schools) and also for more formal instruction of regularly enrolled students on all levels.

Installations of closed-circuit hardware range in size from simple room-to-room, one-channel cable connections in a single school building to multiple-circuit systems complete with studios and videotape recording equipment. In Anaheim, California, for instance, an entire city school system is linked together. In Washington County, Maryland, the entire county system is linked with six channels. Recently, at my own institution, we linked the entire campus with an 18-channel closed-circuit network. Later on you will hear from Robert Schenkkan about another linkage in Texas, in the project called "TEMP."

By 1961 a student body whose numbers could be counted in millions was regularly enrolled in television credit courses or utilizing the medium on a supplemental instructional basis. Dr. Lawrence McKune, the television production coordinator for Michigan State University's Continuing Education Service, is editor of Telecourses for Credit, an annual national compendium which reports televised credit instruction and other educational television activities. He has included some rather startling data in his ninth edition, recently published. There are more than 1,225 educational agencies using telecourses to serve more than 1,500,000 credit-course students and more than five million students on a supplemental basis. Dr. McKune tells me that he by no means go a 100-per-cent response from the country. Those figures to me are rather startling.

I was startled again the other night in Ohio. A bill was passed by the last state legislature adding five dollars per school foundation unit to each public school system which uses television in some fashion. This was only a token bill, to motivate TV's educational use. The State Superintendent of Education, in checking the roster and sending out questionnaires to find out how much televised instruction exists, reported this almost incredible figure to me: out of 76,000 teacher units in Ohio, 34,000 are using television in some fashion. In this case we have to credit the larger part of those numbers, perhaps, to the Airborne Television Instruction project which covers a good portion of Ohio.

New Developments

The recent period of educational television's growth seemed to have reached a dramatic height in this same Midwest Program on Airborne Television Instruction. This venture is headquartered at Purdue University, financed by the Ford Foundation and by corporate grants, and equipped with two DC-6B transport cargo planes, each carrying two UHF transmitters and videotape reproduction equipment. The project group conducted a nationwide "teacher talent search" before it began beaming programs of instruction to elementary, secondary and college students in Indiana and its five bordering states.

But to top that, the Federal Communications Commission and the National Aeronautics and Space Agency have been studying applications from American Telephone and Telegraph Company and a group of other industries for permission to orbit

a series of satellites on which a worldwide communication system could be based. Educators are making a special report to and at the request of the Federal Communications Commission in terms of what this might mean to education over the next few decades.

Educational broadcasters, who first began to develop educational communications back in the 1920's at the University of Wisconsin's pioneer radio station, WHA, are now able to look at all of these developments from a somewhat different perspective than they could several decades back. Behind us now are ten years of research in ETV and instructional TV; the passage of Title VII of the National Education Defense Act, which provided Federal funds for research in the new media such as radio, television, films, teaching machines, and so on; and, finally, the bill just passed by the Congress authorizing grants of up to a million dollars to the several states for ETV facilities. So -- with considerably more assurance than existed in the 1920's or 30's or 40's -- the educational establishment has begun to consider seriously what role these new electronic devices might play, not as a peripheral part but as an integral part of the educational scene.

Let me depart for a minute and refer you to a new booklet which I suggest you might find worthwhile. This is a North Central Association publication entitled "The Uses of Television in Education." It represents a three-year effort to describe the ETV picture in simple terms -- to create something that a principal, superintendent, dean or president would actually take the time to read. The booklet tries to state what is known with assurance about television as a teaching instrument, listing the present standard practices (and some variations), the research done, and the research still needed, together with some conclusions and recommendations. I think perhaps the most important statement in the booklet is this: "Television is a new medium of communication, not a method of teaching and learning. It permits many variations in the teaching and learning process but its effective use is based upon the same fundamental psychological principles which apply to all successful processes of learning. The attitude of the learner and the results of the teaching are certain to be affected by the quality of instruction and its adaptations to the needs and motivations of the learner in televised as well as conventional instruction." So, television is simply a new medium of communication, not a new method of teaching and learning. It is a distribution device, as good or as bad as what is put into it.

I think the statement that the North Central Association's President, Dr. J. Fred Murphy, made this past January at Michigan State University was not only interesting, but prophetic. He talked about a trend in North Central accreditation philosophy from the quantitative to the qualitative and then, speaking specifically about TV, observed: "Study and action programs have demonstrated that individuals learn from presentations on television. Accepting this idea as a truism leads me to conclude that the NCA must face the reality that a TV program for instruction should be recognized as a part of the total institutional pattern and be evaluated objectively." In other words, he was putting NCA institutions on notice to examine what they are doing about TV. At the conclusion of his statement he said, "The uses of television in education are in the category of contributing to the improvement of the teaching-learning process. The uses of television offer fewer opportunities for evaluation in terms of quantitative standards. One might conclude, therefore, that since the uses of television in education can be directed in accord with current trends of accrediting

educational institutions through an analysis of their whole process of learning, teaching, research, experimentation, television in education is destined to become of increasing importance as educational institutions are appraised or reappraised for membership in North Central. If we are sincere then in our Association policy, namely to consider objectively the total pattern of an institution, evaluators will be obligated to assess the uses of television in a given institution as an integral part of the total pattern of the institution."

To me, this is a basic concept. If television is an integral, and not peripheral, educational device, then it should be introduced into the quality-quantity equation which no longer permits the same range of choice. As Dr. Gustavson said, the point is to learn how to use this new medium effectively, not to speculate about its potential in a time of educational crisis.

In effect, television over these years has developed from a fringe experimental usage to exactly this type of integral application in many institutions where televised instruction is a basic and respected part of the institutional program.

Future Trends

Your chairman asked me to talk a little bit about trends and major developments which are on the horizon. I think that a first point of departure is to report the very good deed I think the National Defense Education Act and its Title VII committee accomplished for the whole country. Title VII of the National Defense Education Act spoke of "the new media," and I think that this concept is fundamental. Through the years, quite understandably (because the development of the various media occurred in historical progression) some of us have acquired a kind of false patriotism towards one medium, so that someone might say, "I'm a charts and graphs man," or "I'm an eight millimeter film man," -- and so on in relation to radio, television, and teaching machines. (Incidentally, the prejudices against television at my own institution began to evaporate as teaching machines became a new target of opposition.) The point is that these devices are merely "hardware" or artifacts; they are distribution systems. The answer to our problems is not to support one device as against another or to be overly enthusiastic about it; rather it is to relate them all together and see how they can help us to design and shape education for the future.

For example, let's think for a minute about buildings. Some of you may have heard Dr. Thomas Pollock, the Dean of the College of Arts and Sciences at New York University. He says that the whole classroom-teacher-library pattern of today's education is an historical accident. When the American colonies first began to offer what was then called higher education, one of the rarest possessions was a book, and a library was even rarer. So they built a building, a schoolroom -- to protect the people from the New England environment, to house the few simple teaching aids they had, to provide a place for a teacher to tell students what he had read in the book he happened to own.

(At this point it was also felt that it wasn't entirely appropriate or desirable for everybody to read everything anyway. Edgar Dale, at Ohio State, found a curious bit of data from England. When its advocates were trying to promote the public library in England, in pre-colonial days, there was a great deal of criticism

about the danger of every young gentleman having access to books which could stimulate unapproved ideas. Then proponents of the library countered with the suggestion that young men would stay out of the taverns if they had access to the libraries. And then the brewery interests became the opponents.)

In any event, Pollock suggests -- and he knows it is an extended illustration -- that after we had a room, a book, a teacher, and a class, the educational population began to grow. As education became more complex, with more students, authorities simply added more room units without questioning the validity of this action. Therefore, the modern university or school system represents a creation something like the cities of today which were designed and built before electricity or automobiles, with the consequent congestion and lack of adaptability to modern needs. Pollock says it is pointless to simply continue to add units now that television offers a new way of organizing and distributing information. The idea of listening to or looking at a lecture in a TV-equipped dormitory or at home is one example of the use of the new media mentioned.

And let us then think of the "cross-media" approach, which is one of the new developments on the horizon and one of the strong trends -- the idea of using all of these devices together. I have a few preliminary notes on a study which is being financed by the U. S. Office of Education in a West Virginia school. The project suggests that, if you stripped away your preconceptions and began to think of what an ideal high school or university might be, you would assume some of these principles:

First, a wide range of learning materials would be utilized singly and in combination. (Today this means the whole array of electronic laboratories, language labs, and so on.) Second, learning materials and media would be made available by electronic means to teachers and learners. Third, basic instructional materials would be programmed in advance. (One of the things television has done is to impose discipline on the teacher and to make him realize he couldn't always use his 20-year-old notes if he had to compress his material into a good presentation of 30 minutes.) Fourth, the varied learning media materials would be used in variously sized groups and by individual learners. Fifth, mass media would be used not only to present content but to motivate learning and to stimulate current and subsequent activity. Sixth, the simultaneous communications media, radio-television, would serve as a major integrating factor in the schools.

In a recent publication, the U. S. Air Force suggests that there will be a tenfold increase in the reliability of electronic devices over the next decade or two, with a significant decrease in costs -- as much as tenfold in some cases. Next, we can expect a hundredfold decrease in size and bulk material requirements and a tenfold decrease in power consumption. This trend toward miniaturization and lower costs is sure to have its impact on devices useful in education.

Another trend which is just over the horizon is the wider use of multiple channels in educational television. The pioneer in this development was Hagerstown, the Washington County school system in Maryland. This was a six-channel coaxial set-up, as I am sure you remember. They used five channels to serve different grade levels at different times, and found that this was susceptible to all sorts of combinations -- providing separate tracks for slow learners and fast learners, for supplemental instruction only, for total teaching, and so on. The sixth

channel was used largely as a preview circuit and as an "intercom" device for teachers. It soon became evident that there was a great deal of utility in multiple channels. And this, in a way, was the underlying premise for the Airborne project. At this point, the telephone companies were operating under tariffs (since changed) which meant that long-line runs of any significant mileage could be prohibitively expensive. So they simply developed multiple channels in the air, and the original idea of the Airborne project was to have six channels, six transmitters, operating from that plane. The system would thus permit serving every grade level from first through twelfth; college undergraduates; medical, dental and other post-graduate fields; and a whole program of adult education. They even talked about including a county agricultural extension education program. If such a plane had six channels and operated 24 hours a day, the possible combinations of programming would be very large indeed.

Another approach is one you will hear about shortly from Robert Schenkkan of the University of Texas. In the TEMP project he directs, multiple-channel microwave links connect a number of institutions. In your program folders you will see a report on low-power stations and multiple transmitters using UHF frequencies at the University of Utah, where they achieve a multiple-channel effect by using two or three small transmitters.

Paul Chamberlain, of the long-range marketing program at the General Electric Company, is an interesting man. He predicted, long before the fact, the present total of television stations to be on the air commercially: just under 600. Shortly after that, he predicted that in the next decade there would be three or four times as many educational television transmitters as commercial transmitters. He also had a plan for multiple transmission wherein he visualized a tower (a miniature of the World's Fair tower here), which would have an antenna on a square platform at each of its four corners. Such a system might serve two or three or four county school districts and would be financed on a pro rata basis accordingly.

I think that still another trend is soon due to become apparent. There is a little school system located in a wealthy community near the Ohio State campus. It fancies, rightly or wrongly, that it has a somewhat better school system than any other in the area -- and that many of the television offerings either from the Airborne project or from my Channel 34 station are a little declassé. Hence it plans to produce its own TV lessons. Nonetheless, the school uses programs from both sources. The superintendent wired one building in his school system, first to receive the educational station in Columbus and then to receive the two channels of the MPATI. Now he is in the process of wiring all the buildings in the system, and he says that the next step is to build a little production studio. There he can "tailormake" some of his own lessons, either full-scale lessons or supplementary ones, so as to meet the needs of his own system. Then, plans call for videotape recorders to record and repeat these lessons. At some point in this process we may find that he has an inter-linked, multiple-channel school system in which the MPATI, the Canadian film board, Encyclopedia Brittanica Films, Channel 34, and the commercial networks all become part of a new electronic "library" of resources.

In the years to come, there will be more of everything -- more videotape recorders, more stations, and a national educational network for adults. There may be an instructional network also, but I think this is more likely to be a

distribution mechanism for regional use. Many of the state network plans in educational television have faced opposition, not only because they represented a new departure (and any change is likely to be thought dangerous) but because of the tradition of autonomy of local school boards. The answer, and an honest answer, was that if a state network in a given state offered programs from grades one through 12 and for the colleges, it didn't mean that any body had to use any or all of what was offered. The programming was an attempt to create a quality "floor," to get a television faculty which could offer the best. If a given college, through foundation grants or good luck, was able to assemble a fine physics faculty of five people instead of two, and to give more individual attention to students, it need not use the televised offerings. If it could not manage this, the televised offerings would provide the quality floor. It was suggested to the school systems that a complete series of lessons running throughout the day need be nothing more than a resource like electricity or water. If they wanted to press the switch they would have it; if they didn't, they need not use it. If their bell-ringing schedule made direct viewing inconvenient, one solution would be to have a videotape recorder in the school system and for the network to put Tuesday's lessons on the air between midnight Monday and 6:00 a.m. Tuesday. The school could record the lessons from the network and replay them on its closed-circuit system on its own schedule. I think that sort of thing is certain to happen.

What bothers me most of all is what we do about the out-of-school child and the adult. What the future trend there will be, I don't know; but I know what I hope it will be. Originally, the concept of the educational TV station was not that of a formal instructional device; rather it was to be an alternative program service, alternative to commercial television, providing the viewer a continuous choice. News in depth and serious cultural programming would be its hallmark. In 1955, as the Ford Foundation's Fund for the Advancement of Education began to finance formal instructional experiments in television, and as people became more and more aware of what the population explosion would mean to school systems if they continued to operate in conventional ways, "instructional TV" as a device within the formal framework of education began to be a dominating concept. I have always felt that the two ideas were linked. Unhappily, however, there is no "form" for adult education like the medical school, the public school, or the university graduate school. The only form that we have developed is the large extension division and the agricultural extension division.

The decisions <u>all</u> of us have to make over the next five, ten, or fifteen years (whether we are qualified to make them or not) have a great deal to do with whether we will survive or how we will survive. I believe that there is an over-riding obligation on the part of all television stations, especially educational stations, to help in this effort, as well as a new imperative for the state university -- no matter what the formal problems are.

In summary, I think that telecommunications, with its whole arsenal of electronic tools, some of which remain to be discovered, can play a major role in meeting the challenge of rising enrollments, in attacking the problem of the avalanche of new knowledge, and in trying to keep some kind of quality "floor" in education. The new media -- radio, television, films, audio and video tape recorders, remote controls, self-teaching and testing machines, data processing, computer units, closed-circuit networks -- all of them are simply technological

extensions of the sensory apparatus and the rational process of the human being. Their purpose is not to limit but to augment and extend human capacity.

These devices are not ends in themselves, nor are they merely supplementary. They are integral parts -- or should be -- of the process of instruction. They are not separate and unrelated devices but elements linked in a whole continuum, with a basic role in the teaching and learning process.

Dr. Wilbur Schramm has said: "The real importance of these new electronic devices is that they offer a way to relieve the teacher of some of the drudgery of teaching facts and skills, from some of the drilling, from trying to appear expert in more areas than anyone can possibly be expert in, from trying to provide more demonstrations than any one institution can possibly provide. By relieving them of such time-consuming and inefficient activities they offer the teacher a chance and free time to help individual students, to help all students acquire the ability to solve problems, to think critically and to develop their creative and inventive talents -- kinds of teaching which are <u>not</u> so well done by machines."

FEDERAL ASSISTANCE TO EDUCATIONAL TELEVISION

by Dr. Armand Hunter, Television Consultant
U.S. Office of Education

(Dr. Hunter, who is Director of Broadcasting Services at Michigan State University, presently is a television consultant to the U.S. Office of Education. He has devoted special study to the proposed legislation which resulted in Public Law 87-447. Dr. Hunter also is a member of the Advisory Committee of the Educational Media Branch on Title VII of the National Defense Education Act. He has had an active career in educational broadcasting, including stints as Director of Radio at Northwestern University, Director of the Department of Speech and Theater at Temple University in Philadelphia, and Educational Director of Station WFIL in that city.)

I cannot speak officially as a representative of the Secretary of Health, Education and Welfare, or for the U.S. Office of Education. As a consultant, I am not a member of the staff. I can, however, give you some of the background and development of the recent ETV legislation; and I hope that you will then be of assistance to me, by asking me questions on the kinds of issues that you feel are important as a result of this legislation. I would like to go back to Washington and convey this information in such a way that it can have some impact on the criteria and the regulations which will have to be developed for the administration of this law. I will start with a little history, the background of this educational television legislation.

Hearings on proposed ETV legislation were held before subcommittees of the Committees on Interstate and Foreign Commerce in both the Senate and the House in the 85th, 86th and 87th Congresses. These hearings were extensive, and a great many people testified. I had occasion to appear at these hearings and to speak of the need for Federal support for the development of educational television. The Magnuson Bill, S. 205, passed the Senate three times. But in the House, the Roberts Bill, now identified as H.R. 132, was twice held up in the Rules Committee. It was reported out this year and the two bills have now been passed by the respective Houses. A Joint Conference Committee has produced a compromise report which has been passed by both Houses. This report is now in the hands of President Kennedy for signature.

Actually, a total of seven bills were submitted to the House during the 87th Congress; H.R. 132 was approved when the Senate passed S. 205. You may be interested in some of the features of these two bills, so as to understand the degree of compromise produced by the Senate and House conferees.

First, the Magnuson Bill proposed to give $1 million to each state including the District of Columbia, not on a matching basis but as outright grants-in-aid. These funds were to be administered by the U.S. Commissioner of Education and the Bill's purpose was to establish or improve educational television broadcasting facilities.

The agencies or officers eligible to apply for funds under this particular bill were chief state school officers, superintendents of public instruction, state educational television commissions or authorities, and state-controlled colleges and universities. Any one of the above was authorized to distribute funds received under the act to nonprofit foundations or corporations organized primarily to operate and conduct educational television broadcasting. The funds were to be used for the acquisition and installation of transmission facilities, including closed-circuit television facilities, but were not to be used for the construction or repair of structures to house such facilities. The Federal Communications Commission was authorized to provide assistance if necessary, but the Commission was not given any direct control over television broadcasting and the bill itself did not amend any provision of the requirements of the FCC.

This was a relatively short and simple bill. There probably were some drawbacks to it; and many of you probably have your own ideas and opinions of the effectiveness of this Senate bill in embodying an effective program of aid for educational television.

In any event, the House drew up legislation that differed in several respects from the Senate proposal. The House Bill, H.R. 132, had two purposes: (1) to assist the states in making surveys to assess their needs, and (2) to provide funds for construction. Fifty-two thousand dollars were to be made available for matching grants for the surveys, on the basis of $10,000 of Federal money to be matched by $10,000 of state funds. Twenty-five million dollars was to be made available in matching grants for construction. The Magnuson Bill, which authorized $1 million to each state, would have provided a total of about $51 million for the 50 states and the District of Columbia. But the House Bill authorized $25 million on a matching basis, with a maximum for any one state of $1 million in construction grants. It also included a feature that had not been included in the consideration of Federal aid for educational television during the previous two years: a sort of credit provision for those institutions, agencies and stations that had already obtained licenses and were providing educational television services. This provision allowed 25 per cent of a grant to be matched by credit for previous construction, but the total Federal grant was not to exceed 75 per cent of the total cost of the project.

In other words, for all new construction you would get 50 per cent of the total cost through this assistance program. If you already owned an existing station and wanted to finance a new construction program to extend your services, you could get up to 25 per cent of the total cost of the project as additional credit for your previous capital investment.

This bill also was to be administered by the U.S. Commissioner of Education. Any request for a survey grant under this bill was required to be certified by the Commissioner if the governor or the legislature of the state by resolution certified that Federal funds would be matched by state funds, and that all such funds would be spent only on the survey, and on development of a program of construction. Also, under the survey provision, the Commissioner was authorized to encourage area or regional surveys and programs, with the authority to amend the state plans if necessary in order to adjust to a certain broad regional coverage design. The purpose of the state survey, in other words, was to assess the state's educational needs and to help create a regional pattern where broader coverage and interstate cooperative programs could be developed.

As to grants for construction, applications had to include the total cost of the proposed project, the amount of Federal funds requested, and proof that the applicant was (a) an agency or officer responsible for the supervision of public elementary or secondary education or public higher education within that state or within a political subdivision thereof; (b) the state educational television agency or authority; (c) a college or university deriving its support in whole or in part from tax revenues; or (d) a nonprofit foundation or corporation organized primarily to engage in educational television broadcasting.

Now, you may have heard of the Griffin Amendment. When this bill was up for debate in the House, an amendment was offered which erased the eligibility of non-profit community educational television organizations, associations, and corporations. This was done because some questions were raised as to whether the Chamber of Commerce or the AFL-CIO could otherwise become applicants for grants. Considerable argument was developed on this, and the amendment was passed because the questions which were raised were not answered satisfactorily at the time the debate was being carried on.

This bill also required applications to be submitted through the authorized state ETV agency and to have the approval of that agency. In other words, the assumption was that a state educational television agency or authority would, more or less, grow out of the state survey, and that grant applications would be submitted to such an agency for approval. It was expected that this agency would be a board or a commission established by the legislature, a board or commission appointed by the governor, or the chief state school officer or his counterpart in higher education, if appointed by the governor. Of course, if the legislature and the governor were not working too well together, this might lead to a difference of opinion and to a little problem in getting such an agency established.

The House bill provided that the Commissioner should approve applications on the basis of criteria established by regulations designed to achieve (1) prompt and effective use of all educational television channels available; (2) equitable geographic distribution throughout the States; (3) service to the greatest number of persons in as many areas as possible; and (4) adaptability to the broadest educational use. The Commissioner was to set the amount of the grant at not more than 50 per cent of what he determined to be the reasonable and necessary cost of the project. Funds were to be used for transmission facilities.

Here the Hemphill Amendment came in. This was an amendment designed to include authorization for the use of such funds to purchase closed-circuit television equipment. There was considerable discussion of what was meant by this, and the result was that the funds were allowed to be used for the purchase of closed-circuit television equipment needed to enable programs to be broadcast from a closed-circuit TV installation. This would mean microwave units or facilities necessary to get programs from a closed-circuit operation to a station for broadcasting purposes, or to enable a broadcasting station to connect directly with the closed-circuit television operation. Essentially, it was an authorization to provide funds for the purchase of equipment which would inter-connect facilities; and such funds could not be used for the development of closed-circuit television facilities having no broadcasting function or purpose.

The Commissioner was authorized to request assistance of the FCC, and was required to provide for consultation and cooperation with the Commission. Again,

the Commissioner was not to have any control over televison broadcasting and nothing in the act was to amend any other provision or regulation of the Commission.

Now, all this is history. This was the House bill, and I think you can see that there werea number of differences from the Senate version. The main differences, of course, were the matching requirement, the state survey provision, and the authority for the Commissioner to encourage state and regional development programs. The amendments affected the type of agency or organization qualified to submit a grant for construction and the nature of the equipment that might be purchased.

Now we come to the Conference Committee report and we are up to the present. The information contained in this report was made available to you by Mr. Stewart. It is a compromise version, a result of the Senate and House bills being put together in committee. I will go through it very carefully and try to analyze some of the possible implications of it; then, of course, you can draw your own conclusions about it. This is the bill that has passed both the Senate and the House and is in the hands of President Kennedy for signature. In all likelihood it soon will become law.

Section 390 states that the purpose of the bill is to assist through matching grants in the construction of educational television broadcasting facilities. Please note that there are no funds available and no program available for state surveys; the state survey feature of the Roberts Bill is missing from the final act. The authorization of appropriations is for a compromise $32 million, and this aggregate is available to carry out the purposes of section 390. According to section 392, for each project for the construction of educational television broadcasting facilities there shall be submitted to the Secretary an application for a grant containing such information with respect to such project as the Secretary may by regulation require, including the total cost of such project and the amount of the Federal grant requested for such project, and so on. Notice that in the other bills the Commissioner of Education was the officer given the administrative authority for handling of the grants. In the final form it is the Secretary of Health, Education and Welfare.

The Secretary must be satisfied that the applicant is: (A) an agency or officer responsible for the supervision of public elementary or secondary education or public higher education within the state or within a political subdivision thereof; (B) the state educational television agency; (C) a college or university deriving its support in whole or in part from tax revenues; or (D) a nonprofit foundation, corporation or association which is organized primarily to engage in or encourage educational television broadcasting and is eligible to receive a license from the FCC for a non-commercial educational television broadcasting station pursuant to the rules and regulations of the Commission in effect on April 12, 1962.

By this language, of course, the Griffin Amendment was knocked out and the community nonprofit educational television agency or organization again was made eligible for a grant under this act.

The Secretary also must determine that the operation of such educational television broadcasting facilities will be under control of the applicant or a

person qualified to be an applicant; that necessary funds to construct, operate and maintain such educational television broadcasting facilities will be available when needed; and that such television broadcasting facilities will be used only for educational purposes.

The total amount of grants under this bill, again, may not exceed $1 million for any one state. And in order to assure proper coordination of construction of educational television broadcasting facilities within each state which has established a state educational television agency, each applicant for a grant other than this agency must notify the agency of its application. The Secretary must then advise the agency of the disposition of each such application. In the Roberts Bill, you will remember, the state ETV agency was the instrument through which applications were to be submitted, and the individual grant applications on a project basis had to have the agency's approval. Now, where you have such an ETV agency in a state, the individual applicant still must inform the agency of his application, and the Secretary must inform the agency of the disposition of that application. But the agency is not a controlling factor any longer. For those states where no such television agency exists, grant applications may be made directly by any individual agency, organization, association or corporation which would qualify as described above. This language does not discourage formation of a state educational TV agency, but it no longer makes such an agency the primary channel for the development of educational television facilities with these funds.

The act goes on to require, like H.R. 132, that the Secretary base his approval of applications for grants, and the amounts of such grants, on criteria set forth in regulations and designed to achieve "prompt and effective use of all educational television channels remaining available." I think I should make it clear that this refers to the more than 270 television channels that have been reserved for educational use. Use of the term "available" reminds us that these reservations are not absolutely fixed, but are subject to certain changes in location and in frequency. There are adjustments of this kind that go on constantly; this is a function of the FCC. But this is what is meant by implementing or activating the existing, available channels.

"Equitable geographical distribution of educational TV broadcasting facilities throughout the States" also is mentioned as a criterion. This does not say "within a state," it says "throughout the States." I would guess that here we are talking about the "white areas," those states in which we do not now have extensively developed educational TV facilities. It is hoped that this legislation will give assistance to those states that are not now able to provide educational television services, and make it possible for them to get such services underway. It is of some concern to the Congress that we attempt to provide educational television across our nation, distributed in geographic terms on as equitable a basis as possible. There is no way to enforce this, of course; if a state doesn't want to use educational TV, it doesn't have to. But they may find that there are no funds available for it if they change their mind at a later date.

Another criterion is to be "provision of ETV broadcasting facilities which will serve the greatest number of persons and serve them in as many areas as possible, and which are adaptable to the broadest educational uses." The language here is far from specific, so again there will arise matters of interpretation. It

is at this point that it will be necessary to be very careful in drawing up the regulations which will establish these criteria and certain orders or priority, so that the Secretary will have firm ground on which to base the judgment of possibly competing grant applications. For example, consider a state that has a densely populated area with an existing ETV facility which happens to be operating on lower power than it is authorized to use because it has been poor all these years. Another section of the state has no ETV service at all. Now the issue arises whether to build a station where there is no ETV service, or to ask for funds to increase the tower height or the transmitter power of the existing station and therefore provide more effective coverage of the more densely populated area which is already being served but not to a satisfactory degree. Who is going to make this decision? Right now, I don't know; but it is clear that there certainly is a wide range for different approaches to the development of ETV service.

From most of the testimony that I have read it seems clear to me, at least, that the Congress had in mind the development of broadcasting stations and facilities to be used for the general public and to provide educational services for all our people. This includes in-school programming and direct instruction, but it is not limited to that. They were thinking of a broadcasting station with the full range of its educational, cultural and informational program services, which can cover any group from pre-school children to in-school children to adolescents to adults to elderly persons.

The report continues: "Upon approving any application under this section with respect to any project, the Secretary shall make a grant to the applicant in the amount determined by him, but not exceeding 50 per cent of the amount which he determines to be the reasonable and necessary cost of any educational television broadcasting facilities owned by the applicant on the date on which it files such application." Here, again, you have the 50 per cent grant plus the 25 per cent credit for existing facilities, making it possible for the government to put up as much as 75 per cent of the total cost of a project. Normally, it would be 50 per cent for any new construction when you do not receive any credit for previous construction.

There are a lot of other details here, having to do with the ten years that you will have to go through with a project, and what happens if you stop broadcasting or something goes wrong, or you run out of money. The government will get a little credit back for its investment in that case. Records have to be kept, and so on.

There are some interesting things to note when you reach the definitions in Section 394. Puerto Rico is included now, as well as the District of Columbia. The term "construction" as applied to ETV broadcasting facilities means "the acquisition and installation of transmission apparatus (including towers, microwave equipment, boosters, translators, repeaters, mobile equipment and video-recording equipment) ..." I am smiling because I think that my colleagues here in ETV broadcasting would see possibilities of a little problem in connection with this listing. It seems to me very clear that the intent of the legislation is to get new stations on the air and that within this framework the idea is to help with the transmitting equipment having the biggest capital costs. The applicant will have to build a building, put in the cameras, wire it up and do

all these things, but the Congress will help in terms of the transmission -- transmitters, towers, antenna, and so on. When we get down to mobile equipment and video recording equipment my personal bias, and again I am not speaking officially, is that this is really not transmitting equipment at all, technically. It can be used as such in the sense that it makes possible programs or resources for transmission; however it is not, strictly speaking, transmitting equipment itself. But the language is there.

The definition also includes "apparatus which may incidentally be used for transmitting closed-circuit television programs" but does not include "the construction or repair of structures to house such apparatus." The term "State educational television agency" means (a) a board or commission established by state law for the purpose of promoting educational television within a state, (b) a board or commission appointed by the governor of a state for such purposes if such appointment is not inconsistent with state law, or (c) a state officer or agency responsible for the supervision of public elementary or secondary education or public higher education within the state which has been designated by the governor to assume responsibility for the promotion of educational television, etc.

Again, the Federal Communications Commission is authorized to cooperate in every way with the Secretary in carrying out this program. I may say that they have been very helpful already and have taken a great deal of initiative in doing everything possible to work with this legislation, offering the Commission's services in carrying out a program of this nature. Once again, nothing in this legislation is to be interpreted in any way as authorizing Federal control over ETV broadcasting.

There are just a few things in the attached Statement of the Managers for the House that I would like to touch upon. The several important changes which have been made in the House bill seem to have the common objective of expediting as much as possible the construction of additional ETV broadcasting facilities. So I believe that the intent of the Conference Committee was to make such compromises or adjustments as they felt would tend to speed up or simplify the making of grants for such construction. They felt that surveys had been made nationwide, and that there was a great deal of information that had been developed over a period of years from the time that the Senate first passed its first ETV bill, and that there was consequently no longer any need for surveys. However, this is a different use of the term "survey." In the Roberts Bill, state surveys were to look into the relationship of ETV service to educational needs, but the Conference Committee was thinking of surveys of needs for channels -- not necessarily of local and state educational needs as such. In any event, the survey provision was dropped on that basis; the Conference agreement omits all provisions for the preparation of state surveys of needs for ETV which were contained in the House version. It was as if they said "We have had surveys running out of our ears; we don't need any more surveys to tell us we need ETV channels. We're sold; the channels are reserved, and all we want you to do is to put them on the air." From their standpoint, this was a reasonable way of looking at this survey provision, but I think it is very different from that which was in the minds of the educators who had been active in developing a survey program.

Some of the language in this report got a little strong. I think it serves to point up the tremendous conviction in Congress that this act can be a very effective force in improving our educational environment and in helping us to meet some of our educational problems. That is what they want done in the interest of this particular legislation. They expect that the Federal funds authorized will provide much-needed momentum to get a large and badly needed expansion of ETV underway at the earliest possible date.

ETV IN THE NORTHWEST: Reports from the States

State of Idaho, I: Carl L. Isaacson
Head, Division of Communications
Idaho State College

The fact that we do not have a joint report from Idaho illustrates the geographic problem of the State. I have to go through more states to get from Pocatello up to the University of Idaho at Moscow than I do to get out here to Seattle.

We have a paradox at Idaho State College. We have TV equipment and facilities conservatively valued at $300,000, not including the cost of the physical plant. We have about 15,000 square feet of equipped TV space. Except for kinescope and videotape, I would say that our facilities compare to what you saw here at the University of Washington. The paradox is that we are not using these facilities for any broadcasting whatsoever. All we are doing is keeping the tubes warm.

We began televising our first picture in 1941. An electronic genius by the name of William Shiflett in our Trade and Technology Division constructed a camera in his own laboratory. From that point our facilities have grown into the plant which I mentioned to you. In 1957, 40 per cent of the new Trade and Technology Building was devoted to TV facilities. During 1956-58 we began our first projects in in-school television to public schools. The programs were good, but I do not think that either we or the public schools were mature enough to understand exactly what we were doing. There was some resistance on our own campus. It reminded me of the cartoon I saw in a magazine, of a monk holding up the first textbook and saying, "This will absolutely destroy the teacher-student relationship."

This project of broadcasting to the public schools ended because we were crowded out of the commercial channel that we were using for a certain number of hours each day. Since then we have done a series of closed-circuit programs on atomic energy. But the last session of the Legislature left us high and dry, and we have simply kept the tubes warm since then. We have had hopes of foundation grants, but have not yet been successful on that front either.

We do hope for a state network. It would be impossible to cover Idaho with transmitters; it would be necessary to use a combination of microwave and closed-circuit units. The Intermountain Telephone Company has applied to the Federal Communications Commission and received a substantial reduction in rates for educational uses -- much lower than those charged commercial stations. Whether this still leaves us with too much cost remains to be seen.

State of Idaho, II: Boyd A. Martin
Dean, College of Letters and Sciences
University of Idaho

We have had a TV studio at the University for a number of years, but it has been used almost exclusively for instructional purposes. We are now installing complete closed-circuit TV throughout the institution. For example, we have taken the cable into ten buildings and into a number of rooms in each building. Recently we engaged in our first experimental work in the instruction of mathematics by closed-circuit. It proved very successful, and next year we probably will be teaching 10 to 15 sections of introductory mathematics in this way. There is a chance that we also will be doing this in chemistry, in foreign languages, and possibly in freshman English during the following year.

During the coming week we hope to make connections with the public schools of Moscow and with some of the local county schools for closed-circuit work. We are getting ready to put in equipment for demonstration in the public schools. We will put our cameras, mobile equipment, and so on in the public school rooms and the practice teachers will remain in the building on the campus for instruction as a part of their practice teaching.

The Moscow area is served by a private cable system, and we are probably going to connect with it to carry our educational programs to the community and to surrounding cities in the country.

We do not have a videotape machine, and this is one of our greatest drawbacks. We probably will find this necessary very soon if we are going to engage in very much closed-circuit TV instruction. Currently, however, we are producing many audio tapes which we send out to 32 radio stations in the State. We also furnish many live programs for the commercial TV stations in the State. We are now planning for an FM radio license and probably will start broadcasting on FM six or seven hours a day beginning this September. An educational channel has been set aside for us, but we have not used it yet. We hope that we will be able to use it in the near future.

Our major dilemma in Idaho with respect to this kind of program is one of achieving integration in the entire State. We are confronted with a difficult geographic situation. As you probably are aware, most of our people live on the Snake River, which starts in the upper valley in the northeast, goes down through the southern part of the State and then comes north to Lewiston. We have the largest primitive area of any State in the Union. And 70 to 75 per cent of the entire land area of Idaho is tax-free; it is owned either by the Federal Government or by the State. Since this is also a very mountainous area, there are real problems in carrying television programs to the various parts of the state. This means, without doubt, that we will have to use microwave and closed-circuit facilities quite extensively in order to get integrated educational TV in the State of Idaho.

State of Montana: Erling S. Jorgensen
Director, Montana Educational Television Project

In Montana six TV channels are reserved for education -- five VHF and one UHF. The UHF channel is in Great Falls; the VHF channels are in Billings, Miles City, Bozeman, Butte and Missoula. Educational TV's recent development in Montana began early in 1960 with the formation by the State Superintendent of Public Instruction of the Montana ETV Committee. The chairman of the committee, Dr. Thomas Morarity of Eastern Montana College, is at this meeting; Fred Gerber of Montana State College, who also is here, and I are members.

Prior to this committee's development, the College of Great Falls had begun cooperating with a commercial station in that city, broadcasting adult education courses for credit one day a week, on Saturday morning. In Miles City there had been some experimentation with educational television through use of a local cable system. This experiment, in Spanish instruction, lasted only briefly and was not followed up. The Governor and the State Superintendent had cooperated in holding an ETV conference in 1954. More recently, production studios have been built and are in operation at Montana State College in Bozeman and at Montana State University in Missoula.

The Montana ETV Committee's membership represents the six units of the University of Montana and the public schools. It is composed of 15 members. This committee was successful in getting a Ford Foundation grant of $21,450 to develop a study which was called the Montana ETV Project. Taking a year's leave of absence from Montana State University, I studied ETV developments around the country so as to find out what was going on in other places, to bring information back to the State, and to develop a plan for the development of ETV in Montana.

The committee also received a $5,400 grant from the Ford Foundation to send representatives of Montana public schools to visit ETV installations in Anaheim, California, and Salt Lake City and Ogden, Utah, and to send representatives of higher education to the University of Oregon and to Seattle to see the operations at the University of Washington and at Pacific Lutheran University in nearby Tacoma.

At the present time, Montana State College has a closed-circuit system on its campus and has taught chemistry by this means for two years.

In Kalispell, the Northwest Video Cable Company has donated equipment and services which enables the community to link 17 rooms in its junior high school for eighth grade science instruction. The school is also linked to the community cable system, which will include other schools in the district next year. They are planning for closed-circuit instruction in science, foreign language and music. This is a minimal operation. They have less than $2,500 invested in equipment; the rest was given to them.

In Missoula, the Montana State University studios are linked to the Missoula TV Cable Company system. Through it, 15 schools of Public School District #1, as well as four parochial schools and outside schools, receive televised instruction in Spanish at the seventh and eighth grade levels. During this first year, we have televised lessons three days a week and repeated each lesson a second time each day. The cable company provides use of its system without charge, the school furnishes the receivers and the teacher, and the University furnishes the production.

We also are using a trailer at Montana State University to feed observation of first and fifth grade classes from a public school back to the University campus so that students in education courses can observe teaching in these classrooms. The University also has developed a closed-circuit instructional TV system on its campus and is planning its use for college teaching.

Some developments are occurring in Butte, Great Falls, Whitefish and Livingston. Funds have been put aside in some of these communities, and in others discussions are under way, for utilizing the existing commercial stations or for using antenna cable systems.

The Montana ETV Committee's report has now been written. It includes a brief history of ETV developments; how ETV is being used in other areas; and what is shown by research on effectiveness and on attitudes towards ETV. It outlines the costs of the various ETV alternatives for Montana schools, ranging from small closed-circuit systems to broadcast stations. It outlines what the committee feels are the resources in Montana which can be distributed by and used for ETV, and it presents a plan for developing a State ETV network.

The plan states that, initially, Montana should use the facilities of existing commercial TV stations and community antenna systems, of which there are a great number with many interconnections. (It may be interesting to you to know that several communities in Montana already are receiving signals from Salt Lake City's Station KUED at the University of Utah. This linkage will continue and several other communities will receive ETV when it develops in the Spokane area because they already pick up Spokane commercial stations.)

The first step of the proposal for a State ETV network is that we develop transmission facilities for the existing studios at the College in Bozeman and at the University in Missoula, and that we link them. The second stage is to add transmitters at Helena, Great Falls, and Billings, with linkage among them all, and to establish a network headquarters. The third stage calls for transmitters at Kalispell, Miles City, and Havre, with links to the rest of the system. The fourth stage contemplates a central studio at Helena. Intermingled with these steps are plans for translators, which feed from these various transmitters to other communities surrounding the system.

This system could feed signals to approximately 75 per cent of the classrooms in the State of Montana. It could be built at a minimum cost of $1.5 million and operated minimally at an estimated cost of $365,000 per year. The cost per pupil in Montana, to serve 130,000 pupils (about 75 per cent), would be in the area of $11.50 per pupil for the first capital acquisition and the operation without instructional cost -- that is, without the salaries of teachers, etc. We assume that this would be borne by the cooperating school districts using the system. It would add about $3.90 per year per pupil to include the instructional cost. To this should be added about $1.50 per year per pupil for capital replacement.

Montana in 1959-60 spent $424 per pupil from tax funds for grades one through 12. The Committee feels that this expenditure of $11.50 per pupil plus about $4.00 to $4.50 more per year is efficient and economical education for the State of Montana.

The recommendations of the report include these: that a network be established in steps as indicated; that ETV in the State be organized under the existing educational authorities -- the State Superintendent of Public Instruction and the State Board of Education (ex officio Regents of the University); that the Board of Education and the Regents ask the Legislature for funds to implement this plan; and that the Montana ETV Committee as now established be continued as an advisory board to the State Superintendent and the Board of Education.

State of Oregon: Ralph Steetle
Associate Dean
General Extension Division
Oregon State System of Higher Education, Portland

Oregon, of the four Northwest states, has had the most state support for the development of educational television. In 1957, through a combination of State funds and a Ford Foundation grant for instructional purposes, Station KOAC-TV, Channel 7, was built at Corvallis. In 1961, Station KOAP-TV, Channel 10, in Portland was constructed with funds from the State legislature augmented by about $75,000 in gifts from industry and from commercial broadcasting.

Oregon currently has an ETV network linking the two VHF channels, with studios at the University of Oregon in Eugene, at Oregon State University in Corvallis, and at Portland. In addition, there is a film studio at the State Capitol in Salem for recording and reporting on the enterprise of government.

Our problem is that we now serve 75 per cent of the population of Oregon and about 200,000 people in southwestern Washington, but our geographical coverage of Oregon is only about ten per cent. One of the dilemmas of ETV is that it tends to give to those who already have -- those who live in centers of population where there is accers to colleges and universities, to museums, to schools, and so on. Educational television increases access to these resources. Our problem of highest priority, which we hope to attack with the help of this Federal legislation, is to reach the more sparsely settled areas where the needs may be greater than they are in the areas now served.

Our institutions are experimenting with closed-circuit television on their campuses. While the state network makes possible inter-institutional developments, there are some needs which are intra-institutional and for which closed-circuit operation is more appropriate.

State of Washington: Loren B. Stone
Manager, Station KCTS-TV
University of Washington

Ten channels were reserved for educational use in the State of Washington, three in the VHF band and seven in the UHF band. There are three stations in operation in the State at the present time, one VHF and two UHF. Station KCTS-TV began broadcasting here in Seattle in 1954 on Channel 9; the other VHF reservations are at Spokane and Pullman. The Clover Park School District, in suburban Tacoma, applied for the reserved channel that had been assigned to that area and went on the air in the fall of 1960 with a UHF station operated by the school district. The Tacoma School District applied for another UHF channel, a non-reserved channel, and put it into operation in the fall of 1961. The Spokane schools, I understand, propose to activate the VHF channel assigned to Spokane by the fall of 1963. The Washington State University at Pullman has a construction permit for the VHF channel assigned to Pullman, and plans to be in operation by the fall of this year with that station. The Yakima County and city schools have applied for a construction permit for the UHF channel assigned to the Yakima area and propose to program by repeating off microwave the programs from the Seattle station, at the present time.

Our station here in Seattle is licensed to the University and is operated as a joint venture between the University, the public schools, two private colleges in the area, and the Seattle Public Library.

There has been a good deal of activity in extending the range of the two existing stations -- the VHF station here in Seattle and the UHF station in the Clover Park area -- through rebroadcast by translators and cable systems. The first translator was put in by the Skagit County Schools. Skagit County is north of Seattle, about half-way to the Canadian border. The entire group of schools in the County went together and installed a translator about three years ago, with which they pick up and rebroadcast our programs for their schools. In the fall of 1961, the Centralia and Chehalis schools installed a translator with which they rebroadcast our station. These translators were financed by the schools on the receiving end. The Clover Park system has installed or is in the process of installing two translators. One will be in the Olympia area, to serve Olympia and the Thurston County, and another one will serve a valley in the Pierce County area which is not far from Tacoma but which does not get the Clover Park signal because of the terrain.

Many cable systems in the area have been picking up the stations, carrying the programs to their subscribers, and offering free service to the schools. In the case of the Seattle and Clover Park stations the cable systems serving the Grays Harbor area, down on the coast of Washington, are carrying the programs. The Port Angeles schools are served by a cable system which takes the Channel 9 (Seattle) programs from their local community cable system. The owner of a couple of cable systems serving the eastern Washington towns of Moses Lake and Ephrata has installed a microwave system -- a common carrier, but a privately installed

microwave -- that carries Channel 9 (Seattle) programs across the Cascade Mountains and puts them into the cable system serving these areas. There are plans to pick up the programs from these microwave units, to serve the Yakima area. There has been discussion also of carrying the signals from this east-west line across the State north into the Okanogan area, and to link up with a cable system there.

We also have been renting kinescopes of our programs to the Bellingham schools, which broadcast them on time donated by the commercial stations in their area. The schools down in the Pasco-Kennewick-Richland-Walla Walla area, a "quad city" group, have been renting kinescopes from us and broadcasting them on time given them by their local commercial stations. They are increasing the amount of time that they wish to use, and are now paying for some time on the commercial stations in addition to that which is donated.

Last summer, a number of us who were concerned about the development of television in the State went to the State Superintendent of Public Instruction and asked if he would attempt to provide some coordination so that this educational use of the medium would begin to develop in some orderly fashion. He called together a committee and recently brought Lyman Partridge to his staff to spend three months studying what is being done as a basis for some sort of coordination.

We have no state educational television agency in Washington. There is some difference of opinion among us as to whether the Governor is about ready to appoint one, in light of the vagueness of the language in the final bill passed by Congress. But we have not given up.

REPORTS OF STATE DISCUSSION GROUPS

At the end of the Conference, reports were presented from the state discussion groups to the general conference.

IDAHO: The Idaho group reported as follows:

(1) The Idaho group noted the special geographic problems of that state, involving population centers scattered widely over a large land area, and very mountainous terrain composing much of the northeastern part of the state.

(2) The group had concluded that leadership in the development of educational television in Idaho must come from the State Board of Education, which is also the governing board for the University of Idaho and Idaho State College. It was decided to bring suggestions from the two public institutions of higher education to the Board, that it form a committee to formulate a statewide plan for Idaho ETV development to be presented to the Governor, or that an existing committee be reactivated for that purpose.

(3) It was decided also to report on the Conference to the State Superintendent of Public Instruction, and to urge that he help to carry forward the impetus for ETV planning stimulated by the Conference discussions.

MONTANA: The Montana group reported as follows:

(1) It had decided to recommend to the State officials that the State Board of Education, which also is the governing board of the consolidated University of Montana, be responsible for the coordination and direction of ETV development in the State.

(2) It had laid plans to propose to the State legislature a plan for a statewide ETV network, based on the report of the Montana ETV Project.

(3) It recommended that WICHE "continue its interest in fostering interstate cooperation in the utilization of educational television."

OREGON: The Oregon group reported as follows:

(1) Better coordination is needed between higher education and secondary-elementary education in planning for the cooperative use of ETV. Members of the group will suggest to State officials that this function be assumed by a coordinating council composed of the Chairmen, Vice Chairmen, and executive officers of the State Board of Education and the State Board of Higher Education, with additional representation from the local school system.

(2) The group will urge the Secretary of Health, Education and Welfare that the regulations for administration of the Magnuson-Roberts act should take into account the "peculiar and specialized problems of the West." These include mountainous terrain and wide dispersal of population, which may require imaginative use of open-circuit TV, closed-circuit TV, community cable systems, microwave repeaters, and other devices to bring good ETV coverage to the greatest number of persons.

(3) The group urged that WICHE continue its facilitating role in the development of ETV, including circulation of examples of "the best in ETV," collection and distribution of the most effective and economical ways of using the medium, and further exploration of ways in which ETV development can be shared among the Western states.

WASHINGTON: The Washington group reported as follows:

(1) Most of its members feel strongly that a statewide coordinating committee for ETV is needed, not merely for administration of matching funds in light of the Magnuson-Roberts act, but to assure sound long-range development of ETV in the State, economically and without wasteful duplication of services.

(2) Members of the group will continue discussions already begun with Governor Rosellini, urging creation of such a committee which would be broadly representative of education in the State, including key lay leaders.

(3) The group feels that a study is needed of Washington's educational needs which are being met, or which could be met better, through the use of educational television.

(4) The group will ask the Governor to notify the Secretary of Health, Education and Welfare (a) that a statewide agency is being created, (b) that a study is being conducted of the State's needs in this regard, (c) that the State wishes to proceed by an orderly, long-range plan for the most effective development of ETV in the State, and (d) that the Secretary is urged to counsel with this statewide committee in expending grant funds under the new act.

Final Program

NORTHWEST CONFERENCE ON TELEVISION IN EDUCATION

April 23-24, 1962
University of Washington
Seattle, Washington

Monday, April 23

8:00 - 9:00 a.m.	Registration, Student Union Building	
9:00	Greetings:	Dr. Frederick Thieme, Provost University of Washington
		Dr. Donald E. Walker, WICHE Commissioner President, Idaho State College, Pocatello
	Plan of the Conference:	Terry F. Lunsford Director of Special Programs WICHE
9:20	Education in the '60's: The Role of Television	Dr. Reuben G. Gustavson Professor of Chemistry University of Arizona, Tucson Former Executive Director, Resources for the Future, Inc.
10:15	Coffee	
10:30	The Development of Educational Television in the U.S.	Richard B. Hull, Director of Radio-Television The Ohio State University, Columbus
11:30	Questions and discussion	
12:00 noon	Lunch, Student Union Building	
1:30 p.m.	Demonstrations of Television's Uses in Education	(Studios, Station KCTS-TV, University of Washington)

Monday, April 23 (Continued)

3:00	Coffee	
3:15 - 4:30	Panel: The Professionals Answer Questions	
		Ralph Steetle, Educational Media Director Oregon State System of Higher Education (Chairman)
		Robert F. Schenkkan, Director Texas Educational Microwave Project, Austin
		David C. Stewart Director, Washington (D.C.) Office National ETV and Radio Center
		John Boor, Chief Engineer Station KCTS-TV, University of Washington
		Dr. Lester F. Beck, Professor of Psychology Portland State College, Oregon
		Mrs. Ila Novikow, First Grade Teacher Viewridge School, Seattle
		Loren C. Stone, Manager Station KCTS-TV, University of Washington

Tuesday, April 24

9:00 a.m.	Federal Assistance to Educational Television	
		Armand Hunter, Television Consultant Educational Media Branch, U.S. Office of Education
9:45	Questions and discussion	
10:15	ETV in the Northwest: State Reports from Idaho, Montana, Oregon and Washington	
11:00	Coffee	
11:15	State Discussion Groups I	
12:00 noon	Lunch	
1:30 p.m.	State Discussion Groups II	
2:45	Coffee	
3:00	Reports of State Discussion Groups	
4:00	Adjournment	

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U. of Washington, Seattle
April 23-24, 1962

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